

SENECIO MILLEFOLIUM T. & G. (ASTERACEAE) AND ITS INTROGRESSANTS

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ABSTRACT

Senecio millefolium T. & G. is restricted to the character of its protologue and a lectotype is designated for it. *Senecio memmingeri* Britt. is removed from the synonymy of *S. millefolium* and designated a hybrid between that species and *Senecio anonymus* Wood.

The author agrees with Barkley (1962) that present knowledge or relationships within the widely introgressing genus *Senecio* L. is insufficient to maintain formal taxonomic sections and the use of convenient species groups, as proposed by Barkley (1978), is presently more utile. *Senecio millefolium* T. & G., a rare endemic of the southern Blue Ridge, is the only eastern representative of the species-group *Lobati sensu* Barkley (1978) and it is unique in this group in that its foliage is infinitely divided into lace-like segments yarrow fashion.

Senecio millefolium is invariably described in publications with this character, in conformity with its protologue. Yet, in herbaria, under this name, are filed a number of specimens which deviate from this character in that the leaf tissue is more or less continuous, with digitate processes at the ends of the lobes. Such a specimen (Fig. 2) was described as *Senecio memmingeri* Britton in 1893 and was recognized as a species until Alexander (1937) called the type on "aberrant" *S. millefolium*. Thenceforth such plants have been treated as a "broad-leaved" phase of *S. millefolium*. This phase was suggested by Barkley (1968) to represent a hybrid between *Senecio anonymus* Wood and *S. millefolium* but he did not pursue this hypothesis. Radford *et al.* (1968) suggested this phase might be a variety of *S. anonymus*.

This author visited a number of stations of *S. millefolium* in the spring of 1983 and found that *S. anonymus* is usually present in the vicinity of the other species. A study of 69 specimens labelled *S. millefolium* in 13 herbaria, certainly most of the specimens extant, revealed that 14, or about 20%, of these specimens are more or less broad-leaved and introgressant between the narrowly segmented bi- or tripinnate-leaved plants of *S. millefolium* and *S. anonymus*. The situation is further complicated by the fact that there is a phase of *S. anonymus* from rocky habitats in the southeastern United States, including the range of *S. millefolium*, with the leaves more dissect than those of plants from general habitats, and in which the normally

entire basal leaves wither early and are commonly missed by collectors (Fig. 3). Such plants are occasionally taken to be *S. millefolium* (Uttal, 1971). The result of these observations is that it is deemed necessary to redefine *S. millefolium* and its introgressants. In the original description, the three types are syntypes, making it necessary to select a lectotype.

SENECIO MILLEFOLIUM Torrey & Gray, Fl. N. Amer. 2: 444. 1843. LECTOTYPE, here designated.: "Table Rock, S. Car." Buckley *s.n.* GH! ISOLECTOTYPE: NY! ISOLECTOTYPE reported in MO by Greenman (1915); not located. LECTOPARATYPES, here designated: "Whiteside Mt., N.C. 1839" M. A. Curtis *s.n.* NCSC!; "Carolina, Fraser" PH! (Minute fragments derived from this specimen were taken by Gray and placed in an envelope mounted on the lectotype sheet in GH and designated (1) holotype by Barkley (1968) and (2) "part of type" by Greenman (l.c.). The locus of the main specimen was traced to PH by reference to Miller (1970).

Herbaceous perennial 2.5–5 (-7) dm tall, glabrous except for occasional persistent ecru floccose axillary tomentum, sometimes lightly pubescent around the base of the receptacle. Stems strict, usually single or occasionally 2 or 3 from a short fibrous-rooted closely branched rhizome-caudex. Basal leaves and persistent leaf-tufts evergreen, fleshy, ovate to narrowly ovate in gross outline (6-) 10–15 (-30) cm long, including the often roseate petiole, (2-) 3–5 (-8) cm wide, 2 or 3 times pinnately dissected, the segments ultimately linear to filiform, 1–2 (3) mm wide. Cauline leaves 2 or 3 (-5), about half the size of the basal leaves or less, deciduous. Inflorescence an open subcorymbiform cyme with (5-) 8–20 (-60) heads. Involucre bracts about 21 (13) in number, 4–5 (-6) mm long, acute, green, pink to brown-tipped, apex minutely floccose. Calyculate bracts acerose, 1–2 mm long, 2–3 in number. Disk 5–8 mm wide, rays 8–10 (-13), ligules 8–12 mm long. Achenes pubescent along the angles. Late April–July. (Fig. 1).

DISTRIBUTION: Local, associated with granite (the rootlets of dried specimens often bear quartz crystals), in the Blue Ridge from Mitchell County, North Carolina to Rabun County, Georgia and adjacent South Carolina. Also on foothills and monardnocks in South Carolina. Not in Virginia (Uttal, 1971).

Because the species is threatened (22 stations were tallied from an assemblage of most extant specimens) it is decided to forego the customary practice of listing representative specimens. Most specimens I saw were collected long ago, some from presently unproductive stations, others from environmentally threatened stations. Recent collections have been relatively few. Many collections are repeats from same stations. Possibly remote sites may harbor undiscovered populations but these are predictably few. Representative specimens may be consulted in the herbaria from which I borrowed. Figure 1 serves graphically.

As noted above, *S. anonymus* is a frequent associate of *S. millefolium* and the two sometimes introgress after the manner of aureoid ragworts as re-



Figure 1. *Senecio millefolium* (Uttal 12992, VPI). Photograph by R. Vilgalys.



Figure 2. *Senecio memmingeri*, holotype (Memminger s.n., NY), $S. \times memmingeri$ (pro sp.) (*S. anonymus* \times *millefolium*). Photograph by R. Vilgalys.

ported by Barkley (1962) and Uttal (1982). Such introgressants are disposed of as follows:

SENECIO × MEMMINGERI Britton (pro sp.) (*Senecio anonymus* × *millefolium*).

Senecio memmingeri Britton in Small, Bull. Torrey Bot. Club 25: 147. 1898.
HOLOTYPE: "Henderson County, N.C., 1887", E. R. Memminger s.n. (NY!);
PARATYPE: "Alabama, Lee Co., 16 May 1896", F. S. Earle and L. M. Underwood (NY!);
PARATYPE: "Blowing Rock Mt., N.C., 4300 feet", 10–20 Jun 1891, J. K. Small s.n. (NY!). Each paratype is discordant with the holotype. Each is *Senecio anonymus* Wood.

Senecio millefolium var. *memmingeri* Britt. in Small & Heller, Mem. Torrey Bot. Club 3(1): 28. 1892, a nomen nudem.

With the gross aspect of *Senecio millefolium*, but the leaf lobes more or less expanded, membranaceous, including basal leaves and leaf tufts, with digitate processes at the end of the pinnae. Upper cauline leaves similar to those of *S. millefolium*. Stems often multiple from the essentially horizontal rhizome-caudex, often arcuate and ecru-tomentose at the base. Heads generally smaller and more numerous than as in *S. millefolium*, or sometimes as large, in open corymbiform cymes. Introgression is complete and it is difficult to identify nothomorphs approaching parental phenotypes. Figure 2.

DISTRIBUTION: Narrowly within the range of *S. millefolium* but more catholic in habitat tolerances, not confined to granite derived soils, and accepting ruderal habitats occupied by *S. anonymus*.

The hybrid, while not swamping out the rarer parent, makes the total number of genetically pure *S. millefolium* less than previously thought, and thus more threatened.

Again, for conservation purposes, it is thought expedient not to list representative specimens. These may be consulted in the herbaria I used. Figure 2 is representative enough.

Common names for *Senecio millefolium* are numerous for such a rare species. They include Piedmont Ragwort (a misnomer), Divided-leaf Ragwort, Thousand-leaf Ragwort, and Yarrow-leaved Ragwort. I propose for a common name Blue Ridge Ragwort to express its endemism and to avoid futile, inaccurate, pictorially descriptive names.

ACKNOWLEDGMENTS

Specimens from the herbaria BM, CLEMS, DUKE, FUGR, GA, GH, MO, NCSC, NCU, NY, PH, US, and VPI were annotated and I think the curators for their courtesies. I especially thank the curators of GH, NCSC, NY, and PH for lending type materials. People who furnished me locality data are treated confidentially. Their contributions were essential to this study and they know they have my appreciation. David E. Boufford called my attention to the syntype situation in *Senecio millefolium* and graciously ceded to me the privilege of selecting the lectotype.

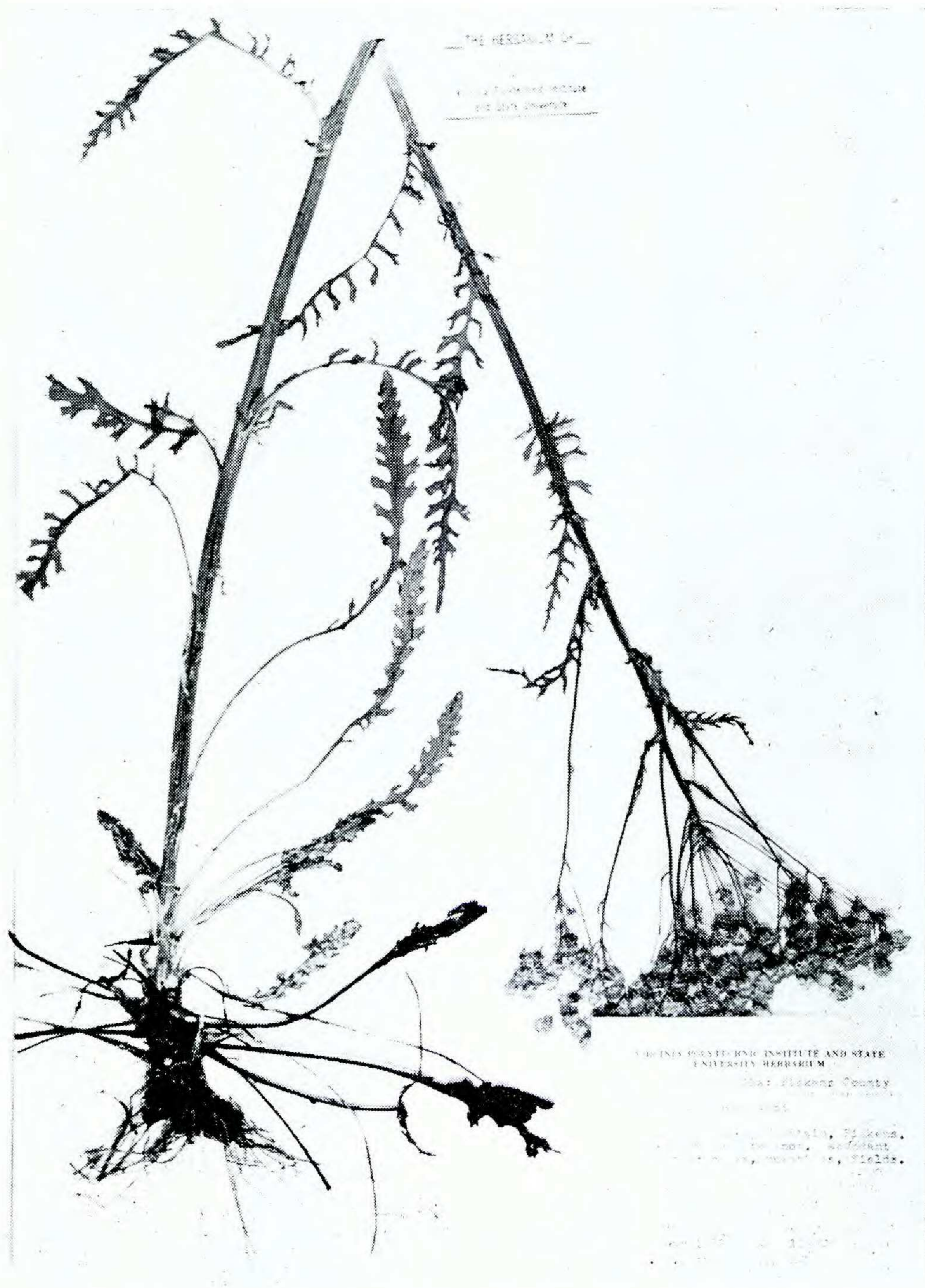


Figure 3. *Senecio anonymus* (Uttal 12990, VPI). Specimen from rocky habitat with early withered entire basal leaves. Photograph by R. Vilgalys.

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